Online Appendix

Strategic Resources for Drug Trafficking Organizations and the Geography of Violence: Evidence from Mexico

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Appendix 1. Variables and Summary Statistics

Table 1.1. Variables and Sources

Variable	Description	Source
Dependent Variables		
Total Killings	Number of killings regardless of victim type. This database registers three types of violent events: 1) aggressions, events where drug cartels attacked government targets and security agents did not counter attack; 2) confrontations, events where there was crossfire between drug cartels and security agencies; and 3) executions, events where either the perpetrator or the victim was a member of a DTO and that were not result of prior confrontation or aggression (Atuesta, Siordia, and Lajous 2018, 5)	CIDE-PPD (Atuesta, Siordia, and Lajous 2018)
Inter DTO Killings	Number of killings in executions excluding police	CIDE-PPD (Atuesta, Siordia, and Lajous 2018)
Independent Variables		
Distance to Closest US Border Segment (100 km, logged)	Locality's distance to the closest portion of the border covering 100 km to each side of each border port of entry	Own calculations from: Department of Homeland Security (2017) and Customs and Border Protection (2019)
Distance to Closest US Border Segment (50 km, logged)	Locality's distance to the closest portion of the border covering 50 km to each side of each border port of entry	Own calculations from: Department of Homeland Security (2017) and Customs and Border Protection (2019)
Distance to US Border (logged)	Locality's distance to the US border	Own calculations from: Department of Homeland Security (2017)
Distance to Closest Port of Entry (logged)	Locality's distance to the closest land border port of entry to the US.	Own calculations from: Customs and Border Protection (2019)
Distance to Closest Port of Entry Closest to Highways (logged)	Locality's distance to the closest land border port of entry to the US that is in the lowest cluster of distance to Mexican highways. Clusters were selected with a k-means algorithm.	Own calculations from: Customs and Border Protection (2019) and INEGI (2019)
Distance to Closest Pipeline (logged)	Locality's distance to the closest oil and gas pipeline of PEMEX. It was not possible to distinguish between pipelines that transport oil or gas. INEGI only registers if PEMEX owns the pipeline and if it is active. According to PEMEX's official information, approximately 35% of the pipelines transport only gas whereas the 20% transport only oil, the rest combine both products (CARTOCRITICA 2017). We do not posit different expectations about the type of resource because, in the end, the logic of extraction would be the same. However, anecdotal evidence suggests that DTOs focus on oil rather than on gas extraction (Pérez 2011).	Own calculations from: INEGI (2019)
Distance to Closest Port (logged)	Locality's distance to closest non-military port (touristic, industrial, fishing). We rely on non-military seaports to avoid mixing areas with state military presence.	Own calculations from: Mexican Transportation Institute and INEGI (2019)
Distance to Closest Airport	Locality's distance to the closest commercial airport.	Own calculations from:

(logged)	We only use data for the major airports as there is more clarity on the type of infrastructure they have. INEGI also collects information about minor land lanes across the country, but these data are mixed with major airports landing lanes and it was not possible to distinguish between both types of facilities.	INEGI's topographic layers (2019)
Distance to Closest Highway (logged)	Locality's distance to the closest paved highway. We use data on concrete-based highways rather than on the whole road network given the latter also includes ground-based paths, which might have a different logic given the costs of travel.	Own calculations from: INEGI (2019)
Control Variables		
Number of DTOs (t-1)	Number of DTOs that were involved in violent events.	CIDE-PPD (Atuesta, Siordia, and Lajous 2018)
Killed DTO Members (logged, t-1)	Number of DTO members killed in confrontation events.	CIDE-PPD (Atuesta, Siordia, and Lajous 2018)
Detained DTO Members (logged, t-1)	Number of DTO members detained in confrontation events	CIDE-PPD (Atuesta, Siordia, and Lajous 2018)
DTO with control in the municipality, either: Zetas, Beltran Leyva, Sinaloa, Familia, Golfo, Juarez, or Tijuana.	Dummy variables equal to 1 if either group had control in each municipality.	Coscia and Ríos (2012)
PAN, PRD, or PRI mayor	Dummy variables equal to 1 if either party was governing the municipality in that year	Lajous (2016)
Party Change	Dummy variable equal to 1 if the municipal party changed in the most recent election	Own calculations from: Lajous (2016)
PRI, PRD, or PRI governor	Dummy variables equal to 1 if either party was governing the state in that year.	CIDAC
(Continuation)		
Social Development	Index generated through principal components summarizing 4 social deprivation factors: • Education • Access to public health • Access to dwelling services • Quality of dwellings (e.g. dirt floors).	CONEVAL (2010)
Population (logged)	Number of inhabitants	INEGI (2010)
Schooling	% of people 15 years old or older without basic education	INEGI (2010)
Marginalization Degree	Index generated through principal components summarizing 4 factors of economic marginalization: • Education • Dwelling services • Population distribution • Income	CONAPO (2010)

Percent of Occupied Male	People of 12 years or older who, during the very week of the survey: a) Worked at least one hour a day to produce goods and services in exchange for a monetary or physical reward, b) Had a job but did not work because any cause without stopping to receive their income, c) Had a job but did not work because any cause, stopped receiving their income, but had an ensured return to their jobs in less than 4 weeks, d) Did not have a job but will have one in 4 or less weeks, e) Worked for an hour or a day during the very week of the survey without receiving any reward in a familiar or not familiar business.	INEGI (2010)
Opium Suitability Area	% of locality's territory covered by areas suitable for opium and marijuana cultivation.	Lujala (2010)

Table 1.2. Summary Statistics

	Mean	S.D.	Min	Max
Dependent Variables				
Total Killings	.162056	9.366282	0	2680
Inter DTO Killings	.1365101	8.761784	0	2526
Independent Variables				
Distance to Closest Border Segment (100 km, logged)	6.458663	.6719952	-1.504514	7.216476
Distance to Closest Border Segment (50 km, logged)	6.458663	.6719952	-1.504514	7.216476
Distance to US border (logged)	6.448699	.7030255	-1.98347	7.212097
Distance to Closest Entry Port (logged)	6.480181	.6139311	-.4227861	7.227599
Distance to Closest Port Closest to Highways (logged)	6.451616	.696179	-1.979354	7.214999
Distance to Closest Pipeline (logged)	3.260524	1.585659	-7.996676	6.013199
Distance to Closest Port (logged)	4.751879	.8067193	-2.178063	6.52528
Distance to Closest Airport (logged)	4.133319	.7797654	-2.604045	5.880545
Distance to Closest Highway (logged)	-.2036021	1.727951	-12.15081	4.71767
Control Variables				
Number of DTOs (t-1)	.0035887	.0970886	0	9
Killed DTO Members (logged, t-1)	.0016834	.0501328	0	3.465736
Detained DTO Members (logged, t-1)	.0027589	.0743613	0	4.234107
Zetas	.2459295	.4306381	0	1
Beltran Leyva	.0895274	.2855042	0	1
Sinaloa	.1197662	.3246888	0	1
Familia	.1132523	.3169018	0	1
Golfo	.1778921	.3824229	0	1
Juarez	.0394018	.1945495	0	1
Tijuana	.0308706	.1729675	0	1
PAN	.258798	.4379756	0	1
PRI	.5469695	.4977903	0	1
PRD	.1149618	.3189766	0	1
Party Change	.4762193	.4994355	0	1
PRI governor	.5678224	.4953801	0	1
PAN governor	.1997271	.3997963	0	1
PRD governor	.2125903	.4091412	0	1
Social Development	2.196133	.9009622	1	5
Population (logged)	6.005269	1.279497	1.098612	14.41203
Schooling	50.84811	12.86333	0	100
Marginalization Degree	3.623841	.8627837	1	5
Percent of Occupied Male	94.99016	8.034237	0	100
Opium Suitability Area	5.70994	23.17115	0	100

Appendix 2. Robustness Checks

2.1 Models Without Controls

Table 2.1.1. Mediation Negative Binomial Estimates

	(1) Total Violence	(2) Inter DTO Violence
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.516***	-0.437***
	(0.028)	(0.027)
Distance to Closest Pipeline (logged)	0.104***	0.103***
	(0.013)	(0.013)
Distance to Closest Port (logged)	-0.154***	-0.163***
	(0.022)	(0.022)
Distance to Closest Airport (logged)	-0.440***	-0.469***
	(0.022)	(0.022)
Distance to Closest Highway (logged)	0.211***	0.200***
	(0.014)	(0.013)
Number of DTOs	3.682***	3.707***
	(0.194)	(0.187)
Constant	2.311***	1.730***
	(0.244)	(0.235)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.558***	-0.558***
	(0.056)	(0.056)
Distance to Closest Pipeline (logged)	0.008	0.008
	(0.025)	(0.025)
Distance to Closest Port (logged)	-0.160***	-0.160***
	(0.041)	(0.041)
Distance to Closest Airport (logged)	-0.573***	-0.573***
	(0.042)	(0.042)
Distance to Closest Highway (logged)	0.259***	0.259***
	(0.026)	(0.026)
Constant	1.337**	1.337**
	(0.479)	(0.479)
Observations	299856	299856
Log likelihood	-45866.380	-42167.226

Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.1.2. Effects on Total Violence

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.030	0.128***	0.555***	0.121***	2.592***
	(0.094)	(0.030)	(0.085)	(0.023)	(0.283)
Direct	1.110***	0.597***	0.857***	0.644***	1.235***
	(0.014)	(0.017)	(0.019)	(0.014)	(0.017)
Total	1.143	0.076***	0.476***	0.078***	3.202***
	(0.106)	(0.018)	(0.074)	(0.015)	(0.351)
Observations	299856	299856	299856	299856	299856

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.1.3. Effects on Inter DTO Violence

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.030	0.126***	0.553***	0.119***	2.609***
	(0.095)	(0.029)	(0.085)	(0.022)	(0.284)
Direct	1.108***	0.646***	0.850***	0.625***	1.222***
	(0.014)	(0.017)	(0.019)	(0.014)	(0.016)
Total	1.142	0.082***	0.470***	0.075***	3.189***
	(0.106)	(0.019)	(0.073)	(0.014)	(0.349)
Observations	299856	299856	299856	299856	299856

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.2 Models with Additional Controls

We include and/or change some control variables that might shape both the drug market structure and the rates of violence. In the manuscript we used the **social Development** index from the National Commission for Evaluation (CONEVAL) (2010). This index measures the amount of social deprivation capturing the quality of dwellings (ground-based soil, inhabitants per room) and people's access to services such as health, education, and water. Although CONEVAL (2010) does not consider such an index to be a measure of poverty, we use it as a general measure of people's access to resources that can shape localities' vulnerability to drug violence. Another available index to measure such access to resources is the **marginalization index** from the National Commission of Population (CONAPO)(2010) —considered a multidimensional measure of poverty. This index tries to capture the income levels of population. However, at the locality level CONAPO uses the percent of people with refrigerators to capture income rather than directly measuring the levels of income (CONAPO 2010). To account for these differences, we included the *Marginalization Index* in our models.

We included a couple of dummy variables capturing political factors associated with drug-violence. First, we added the dummy variable *PRD Governor*, equal to 1 when the PRD governs at the state level. In the core models of the manuscript, we left PRD governors as a reference category along with other smaller parties such as XXX. Even though the PRD is not as strong as the PRI or PAN, it is stronger than smaller parties such as *Nueva Alianza* or the *Partido del Trabajo,* or *Convergencia* measured by its electoral records at the state level. From 2006 to 2011, on average, the PRD governed 18% of all Mexican states, on average, whereas smaller parties governed just 2% of the states during the same period (CIDAC 2015). Mixing the PRD category with smaller parties might confuse the effect of the PRD with that of states governed by smaller parties. In addition, this allows to measure if only small parties are the ones isolated by national policies, a factor that researchers find to drive violence at the local level (Trejo and Ley 2016). Second, recent research suggest that partisan politics matter for drug-related violence because political changes motivate politicians to crackdown on criminal groups and on criminal protection rackets destabilizing the equilibriums among DTOs and between them and government leaders, leading to more in violence (Dell 2015; Trejo and Ley 2018; 2016). Therefore, we included the dummy *Partisan Change* equal to 1 if there was a partisan change in the most recent municipal election.

Local economic and social conditions help to explain when do individuals have incentives to join DTOs or when are they more likely to be involved in forced recruitment. An important portion of the recruits in DTOs seems to be dominated by unemployed males which also drives violence and fragmentation of DTOs (Grillo 2012; Osorio 2015). Therefore, we included the percentage of occupied males in each locality (INEGI 2010).

Another change was the measure of state repression. We measured state repression as the number of DTO members killed in confrontations with security agencies. However, effective state repression is the one that deters non-state threats from arising, mainly through monitoring strategies. Detaining rather than killing DTO members is a better proxy for such monitoring capacities of the state because, to do so, security agencies need to track drug

trafficking to then capture key figures rather than eliminating them in confrontations. As such, we used a lagged term of the *Number of Detainees* in confrontations with the state (logged).

Finally, areas with conditions to cultivate narcotics might also be more valuable for DTOs as they can increase their gains from controlling such territories (Paivi Lujala 2009). Thus, with the variable *Opium Suitability Area* we controlled for the percent of each locality's area that are suitable for opium cultivation with data from Lujala and Buhaugh (2005). Tables 3.2.1-3.2.3 show the results after these changes.

Table 2.2.1. Mediation Negative Binomial Estimates

	(1) Total Violence	(2) Inter DTO Violence
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.417***	-0.343***
	(0.025)	(0.026)
Distance to Closest Pipeline (logged)	0.216***	0.211***
	(0.015)	(0.016)
Distance to Closest Port (logged)	-0.101***	-0.115***
	(0.023)	(0.023)
Distance to Closest Airport (logged)	0.171***	0.160***
	(0.025)	(0.025)
Distance to Closest Highway (logged)	0.010	0.007
	(0.014)	(0.014)
Number of DTOs	1.770***	1.770***
	(0.073)	(0.069)
Total Violence (t-1)	0.031***	
	(0.009)	
PAN Mayor	0.149*	0.079
	(0.073)	(0.075)
PRI Mayor	0.207**	0.171*
	(0.069)	(0.071)
PRD Mayor	0.397***	0.366***
	(0.075)	(0.077)
PRI Governor	0.072	-0.060
	(0.159)	(0.159)
PAN Governor	-0.091	-0.239
	(0.165)	(0.166)
PRD Governor	0.523***	0.370*
	(0.159)	(0.159)
Marginalization Degree	-0.363***	-0.312***
	(0.024)	(0.025)
Population (logged)	0.979***	0.970***
	(0.015)	(0.016)
Schooling	-0.006**	-0.006**
	(0.002)	(0.002)
Percent of Occupied Male	-0.005#	-0.002
	(0.003)	(0.003)
Opium Suitability Area	0.005***	0.004***
	(0.001)	(0.001)
Party Change	0.086*	0.144***
	(0.040)	(0.041)
Inter DTO Killings (t-1)		0.011
		(0.009)
Constant	-7.100***	-7.911***
	(0.431)	(0.452)
DTO dummies	Yes	Yes
Number of DTOs		

Distance to Closest Border Segment (100 km, logged)	-0.350***	-0.350***
	(0.037)	(0.037)
Distance to Closest Pipeline (logged)	0.159***	0.159***
	(0.027)	(0.027)
Distance to Closest Port (logged)	-0.134***	-0.134***
	(0.036)	(0.036)
Distance to Closest Airport (logged)	-0.077*	-0.077*
	(0.039)	(0.039)
Distance to Closest Highway (logged) (*Continuation)*	-0.038	-0.038
	(0.029)	(0.029)
Number of DTOs (t-1)	0.608***	0.608***
	(0.073)	(0.073)
Detained DTO Members (logged, t-1)	-0.010	-0.010
	(0.105)	(0.105)
PAN Mayor	0.546***	0.546***
	(0.132)	(0.132)
PRI Mayor	0.488***	0.488***
	(0.133)	(0.133)
PRD Mayor	0.641***	0.641***
	(0.134)	(0.134)
PRI Governor	0.252	0.252
	(0.264)	(0.264)
PAN Governor	-0.408	-0.408
	(0.276)	(0.276)
PRD Governor	0.609*	0.609*
	(0.264)	(0.264)
Schooling	0.004	0.004
	(0.004)	(0.004)
Population (logged)	0.851***	0.851***
	(0.026)	(0.026)
Marginalization Degree	-0.532***	-0.532***
	(0.046)	(0.046)
Percent of Occupied Male	-0.014**	-0.014**
	(0.005)	(0.005)
Opium Suitability Area	0.007***	0.007***
	(0.001)	(0.001)
Constant	-6.813***	-6.813***
	(0.748)	(0.748)
Observations	235467	235467
Log likelihood	-25541.169	-23532.386
Time Fixed Effects	Yes	Yes

Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.2.2. Effects on Total Violence

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.324***	0.538***	0.788***	0.873#	0.935
	(0.065)	(0.038)	(0.050)	(0.061)	(0.048)
Direct	1.241***	0.659***	0.904***	1.186***	1.010
	(0.019)	(0.017)	(0.021)	(0.029)	(0.014)
Total	1.644***	0.354***	0.712***	1.035	0.944
	(0.085)	(0.026)	(0.048)	(0.076)	(0.050)
Observations	235467	235467	235467	235467	235467

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.2.3. Effects on Inter DTO Violence

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.324***	0.538***	0.788***	0.873#	0.935
	(0.065)	(0.038)	(0.050)	(0.061)	(0.048)
Direct	1.235***	0.710***	0.891***	1.173***	1.007
	(0.020)	(0.018)	(0.020)	(0.029)	(0.015)
Total	1.636***	0.382***	0.703***	1.024	0.941
	(0.085)	(0.028)	(0.048)	(0.076)	(0.050)
Observations	235467	235467	235467	235467	235467

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

After these changes, results remain equal: closeness to the US border and to sea ports increases violence significantly both directly and indirectly; closeness to pipelines is associated with less violence; and airports and highways show divergent patterns both in the signs of the effects and their statistical significance. Interestingly, when the PRD governs at the state level, not only violence increases, but also the number of DTOs which supports previous research (Trejo and Ley 2016).

2.3 Multilevel Effects Diagnostics and Models

One potential shortcoming of our models is that we are not considering multilevel effects from localities belonging to municipalities and/or states. To assess if a multilevel model is necessary in this context, we estimated the inter class correlation coefficients for both variables of interest, the number of DTOs and the number of homicides, and for two administrative levels, the municipality and the state.

Table 2.3.1: Inter Class Correlation Coefficients

Level	Variable	ICC
Municipal	Number of DTOs	0.0006
	Total Violence	0.0005
	Inter-DTO Killings	0.0005
State	Number of DTOs	0.0059
	Total Violence	0.0013
	Inter-DTO Killings	0.0013

Table 2.3.1 shows the results of these estimations and suggest that a very small portion of the variability in violence is related to variability at the municipal or state level. Specifically, all coefficients indicate that less than 1% of the violence at the local level is related to endogenous factors of superior levels, rendering multilevel models unnecessary.

In any case, as the ICC at the state level is higher than at the municipal level, we estimated multilevel models with localities nested in states. We could only replicate the models including only control variables that allows the estimation to converge. Tables 2.3.2-2.3.4 show that results remain equal after these estimations. Whereas closeness to pipelines is associated with less violence, localities closer to the US border and ports experience more violence. Overall, the results shown in Tables 2.3.3 and 2.3.4 are similar to those of Tables 2 and 3.

Table 2.3.2. Mediation Negative Binomial Estimates with Localities Nested in States

	(1) Total Violence	(2) Inter DTO Violence
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.277***	-0.217***
	(0.029)	(0.029)
Distance to Closest Pipeline (logged)	0.099***	0.074***
	(0.014)	(0.014)
Distance to Closest Port (logged)	-0.148***	-0.150***
	(0.025)	(0.025)
Distance to Closest Airport (logged)	0.063**	0.028
	(0.020)	(0.020)
Distance to Closest Highway (logged)	0.029*	0.031*
	(0.012)	(0.013)
Number of DTOs	1.448***	1.423***
	(0.058)	(0.055)
PRI governor	0.583***	0.224#
	(0.116)	(0.127)

PAN governor	0.382**	0.077
	(0.141)	(0.150)
Social Development	-0.547***	-0.526***
	(0.028)	(0.029)
Population (logged)	0.980***	0.956***
	(0.012)	(0.013)
Schooling	-0.015***	-0.013***
	(0.002)	(0.002)
Constant	-6.988***	-7.062***
	(0.360)	(0.362)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.212***	-0.212***
	(0.048)	(0.048)
Distance to Closest Pipeline (logged)	0.005	0.005
	(0.029)	(0.029)
Distance to Closest Port (logged)	-0.190***	-0.190***
	(0.048)	(0.048)
Distance to Closest Airport (logged)	-0.047	-0.047
	(0.037)	(0.037)
Distance to Closest Highway (logged)	0.046	0.046
	(0.031)	(0.031)
PRI governor	-0.345	-0.345
	(0.356)	(0.356)
PAN governor	-1.290**	-1.290**
	(0.406)	(0.406)
Social Backwardness	-0.705***	-0.705***
	(0.073)	(0.073)
Population (logged)	0.906***	0.906***
	(0.024)	(0.024)
Schooling	-0.015***	-0.015***
	(0.004)	(0.004)
Constant	-7.820***	-7.820***
	(0.671)	(0.671)
State-level Variance Second Step	1.418***	1.325***
	(0.367)	(0.344)
State-level Variance First Step	2.031***	2.032***
	(0.597)	(0.597)
Observations	283218	283218
Log likelihood	-31908.361	-28928.582
Time Fixed Effects	Yes	Yes

Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.3.3. Effects on Total Violence

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.008	0.736***	0.759***	0.934	1.069
	(0.042)	(0.052)	(0.054)	(0.050)	(0.048)
Direct	1.104***	0.758***	0.862***	1.065**	1.030*
	(0.015)	(0.022)	(0.021)	(0.021)	(0.012)
Total	1.113*	0.558***	0.654***	0.995	1.100*
	(0.049)	(0.043)	(0.049)	(0.057)	(0.051)
Observations	283218	283218	283218	283218	283218

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.3.4. Effects on Inter DTO Violence

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.007	0.740***	0.763***	0.935	1.068
	(0.041)	(0.051)	(0.053)	(0.049)	(0.047)
Direct	1.076***	0.805***	0.861***	1.029	1.032*
	(0.015)	(0.023)	(0.022)	(0.020)	(0.013)
Total	1.084#	0.596***	0.657***	0.962	1.102*
	(0.047)	(0.045)	(0.048)	(0.054)	(0.050)
Observations	283218	283218	283218	283218	283218

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.4 Models with Fixed Effects by State

One potential concern is that unobserved features shape the dynamics of violence and the market structure of DTOs. The common approach would be to include dummies for every locality, but this would significantly diminish our degrees of freedom because of the number of localities (49, 981). Another approach would be to calculate within estimators for each independent variable. However, our main constrain is that, given our core independent variables are fixed geographical features, we would lose them by calculating the differences from the mean. Lastly, we could include municipal level fixed effects but due to convergence problems, we just included state fixed effects. In any case, this might be an advantage because state features and state-level dynamics between DTOs have shaped much of the drug trafficking networks since mid-twentieth century (Grillo 2012). As Tables 3.4.1-3.4.3 show, after these estimations our results remain equal.

Table 2.4.1. Mediation Negative Binomial Estimates

	(1) Total Violence	(2) Inter DTO Violence
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.290***	-0.222***
	(0.034)	(0.034)
Distance to Closest Pipeline (logged)	0.110***	0.091***
	(0.016)	(0.017)
Distance to Closest Port (logged)	-0.106***	-0.117***
	(0.029)	(0.030)
Distance to Closest Airport (logged)	0.104***	0.087***
	(0.024)	(0.024)
Distance to Closest Highway (logged)	0.048***	0.043**
	(0.014)	(0.015)
Number of DTOs	1.438***	1.411***
	(0.062)	(0.059)
Total Violence (t-1)	-0.007***	

	(0.001)	
PAN mayor	-0.100	-0.131#
	(0.075)	(0.077)
PRI mayor	-0.037	-0.020
	(0.073)	(0.075)
PRD mayor	0.172*	0.159*
	(0.076)	(0.078)
PRI governor	0.448*	0.258
	(0.179)	(0.179)
PAN governor	0.411#	0.255
	(0.240)	(0.255)
Zetas	0.279***	0.207***
	(0.044)	(0.045)
Beltran Leyva	0.134*	0.105#
	(0.057)	(0.057)
Sinaloa	-0.020	-0.016
	(0.055)	(0.056)
Familia	-0.083	-0.066
	(0.060)	(0.061)
Golfo	0.099#	0.115*
	(0.054)	(0.055)
Juarez	0.164*	0.205**
(*Continuation)*		
	(0.075)	(0.074)
Tijuana	-0.121	-0.089
	(0.094)	(0.093)
Social Development	-0.552***	-0.506***
	(0.033)	(0.034)
Population (logged)	0.986***	0.964***
	(0.014)	(0.015)
Schooling	-0.015***	-0.014***
	(0.002)	(0.002)
Inter DTO Killings (t-1)		-0.008***
		(0.001)
Constant	-7.968***	-8.367***
	(0.482)	(0.506)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.189***	-0.189***
	(0.049)	(0.049)
Distance to Closest Pipeline (logged)	-0.005	-0.005
	(0.029)	(0.029)
Distance to Closest Port (logged)	-0.202***	-0.202***
	(0.049)	(0.049)
Distance to Closest Airport (logged)	-0.057	-0.057
	(0.038)	(0.038)
Distance to Closest Highway (logged)	0.040	0.040
	(0.031)	(0.031)
Number of DTOs (t-1)	0.127*	0.127*
	(0.051)	(0.051)
Killed DTO Members (logged, t-1)	0.103	0.103
	(0.099)	(0.099)
PAN mayor	0.368**	0.368**
	(0.128)	(0.128)
PRI mayor	0.267*	0.267*
	(0.136)	(0.136)
PRD mayor	0.311*	0.311*

	(0.136)	(0.136)
PRI governor	-0.536	-0.536
	(0.434)	(0.434)
PAN governor	-1.614***	-1.614***
	(0.489)	(0.489)
Social Development	-0.707***	-0.707***
	(0.074)	(0.074)
Population (logged)	0.879***	0.879***
	(0.025)	(0.025)
Schooling	-0.014***	-0.014***
	(0.004)	(0.004)
Constant	-7.463***	-7.463***
	(0.904)	(0.904)
Observations	235997	235997
Log likelihood	-23838.148	-21874.734
Time Fixed Effects	Yes	Yes
State Fixed Effects	Yes	Yes

Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.4.2. Effects on Total Violence

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	0.992	0.762***	0.748***	0.921	1.060
	(0.042)	(0.055)	(0.054)	(0.050)	(0.047)
Direct	1.116***	0.748***	0.899***	1.110***	1.049***
	(0.018)	(0.026)	(0.026)	(0.027)	(0.015)
Total	1.107*	0.571***	0.672***	1.022	1.112*
	(0.050)	(0.045)	(0.052)	(0.061)	(0.052)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.4.3. Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	0.992	0.766***	0.752***	0.923	1.059
	(0.041)	(0.054)	(0.053)	(0.049)	(0.046)
Direct	1.095***	0.801***	0.890***	1.091***	1.044**
	(0.019)	(0.027)	(0.027)	(0.027)	(0.015)
Total	1.087#	0.614***	0.669***	1.007	1.105*
	(0.048)	(0.048)	(0.051)	(0.059)	(0.051)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.5 Models without the Ten Most Violent Localities

We also conducted some tests without influential observations that might bias our results. We first excluded the ten localities with more homicides on average during the period and found the same result as original models. As the following tables show, pipelines keep their negative direct effect on violence; ports and the US border hold their direct and indirect negative effects; and airports and highways their direct negative effects on violence.

Table 2.5.1 Mediation Negative Binomial Estimates without Ten Most Violent Localities

	(1) Total Violence	(2) Inter DTO Violence
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.403***	-0.323***
	(0.024)	(0.024)
Distance to Closest Pipeline (logged)	0.230***	0.217***
	(0.014)	(0.015)
Distance to Closest Port (logged)	-0.104***	-0.119***
	(0.022)	(0.022)
Distance to Closest Airport (logged)	0.176***	0.160***
	(0.024)	(0.025)
Distance to Closest Highway (logged)	0.056***	0.050***
	(0.014)	(0.015)
Number of DTOs	1.781***	1.774***
	(0.074)	(0.071)
Total Violence (t-1)	0.176***	
	(0.016)	
PAN mayor	0.148*	0.060
	(0.073)	(0.075)
PRI mayor	0.192**	0.159*
	(0.069)	(0.071)
PRD mayor	0.396***	0.364***
	(0.075)	(0.077)
PRI governor	-0.418***	-0.430***
	(0.052)	(0.053)
PAN governor	-0.641***	-0.665***
	(0.067)	(0.070)
Zetas	0.317***	0.238***
	(0.045)	(0.046)
Beltran Leyva	0.559***	0.518***
	(0.055)	(0.056)
Sinaloa	0.611***	0.657***
	(0.054)	(0.055)
Familia	0.089	0.115*
	(0.055)	(0.057)
Golfo	-0.142**	-0.187***
	(0.052)	(0.054)
Juarez	0.789***	0.896***

	(0.074)	(0.075)
(*Continuation)*		
Tijuana	-0.221*	-0.085
	(0.087)	(0.087)
Social Development	-0.711***	-0.656***
	(0.030)	(0.031)
Population (logged)	0.902***	0.887***
	(0.015)	(0.015)
Schooling	-0.003#	-0.003#
	(0.002)	(0.002)
Inter DTO Killings (t-1)		0.179***
		(0.017)
Constant	-6.647***	-7.138***
	(0.288)	(0.297)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.352***	-0.352***
	(0.036)	(0.036)
Distance to Closest Pipeline (logged)	0.191***	0.191***
	(0.025)	(0.025)
Distance to Closest Port (logged)	-0.113**	-0.113**
	(0.035)	(0.035)
Distance to Closest Airport (logged)	-0.072#	-0.072#
	(0.039)	(0.039)
Distance to Closest Highway (logged)	0.025	0.025
	(0.031)	(0.031)
Number of DTOs (t-1)	0.711***	0.711***
	(0.078)	(0.078)
Killed DTO Members (logged, t-1)	0.516***	0.516***
	(0.134)	(0.134)
PAN mayor	0.573***	0.573***
	(0.132)	(0.132)
PRI mayor	0.488***	0.488***
	(0.133)	(0.133)
PRD mayor	0.669***	0.669***
	(0.134)	(0.134)
PRI governor	-0.238*	-0.238*
	(0.097)	(0.097)
PAN governor	-0.953***	-0.953***
	(0.125)	(0.125)
Social Development	-0.992***	-0.992***
	(0.068)	(0.068)
Population (logged)	0.803***	0.803***
	(0.026)	(0.026)
Schooling	0.002	0.002
	(0.004)	(0.004)
Constant	-7.452***	-7.452***
	(0.500)	(0.500)
Observations	235947	235947
Log likelihood	-24742.530	-22772.907

Time Fixed Effects	Yes	Yes

Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.5.2 Effects on Total Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.404***	0.534***	0.818**	0.880#	1.046
	(0.067)	(0.037)	(0.052)	(0.062)	(0.058)
Direct	1.258***	0.668***	0.901***	1.192***	1.057***
	(0.018)	(0.016)	(0.019)	(0.029)	(0.015)
Total	1.767***	0.357***	0.738***	1.049	1.106#
	(0.088)	(0.026)	(0.049)	(0.078)	(0.064)
Observations	235947	235947	235947	235947	235947

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.5.3. Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.402***	0.536***	0.819**	0.880#	1.046
	(0.066)	(0.037)	(0.051)	(0.061)	(0.058)
Direct	1.242***	0.724***	0.887***	1.173***	1.051***
	(0.019)	(0.017)	(0.019)	(0.029)	(0.016)
Total	1.741***	0.388***	0.727***	1.033	1.099
	(0.086)	(0.028)	(0.048)	(0.076)	(0.063)
Observations	235947	235947	235947	235947	235947

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.6 Models with Robust Standard Errors

Table 2.6.1. Mediation Negative Binomial Models with Robust Standard Errors

	(1) Total Violence	(2) Inter DTO Violence
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.411***	-0.332***
	(0.037)	(0.031)
Distance to Closest Pipeline (logged)	0.243***	0.230***
	(0.024)	(0.023)
Distance to Closest Port (logged)	-0.108***	-0.125***
	(0.029)	(0.029)
Distance to Closest Airport (logged)	0.192***	0.179***
	(0.034)	(0.034)
Distance to Closest Highway (logged)	0.066#	0.061*
	(0.035)	(0.030)
Number of DTOs	1.738***	1.728***
	(0.115)	(0.118)
Total Violence (t-1)	0.020	
	(0.039)	
Inter DTO Killings (t-1)		0.004
		(0.042)
Constant	-6.784***	-7.293***
	(0.421)	(0.425)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.349***	-0.349***
	(0.036)	(0.036)
Distance to Closest Pipeline (logged)	0.189***	0.189***
	(0.030)	(0.030)
Distance to Closest Port (logged)	-0.105**	-0.105**
	(0.036)	(0.036)
Distance to Closest Airport (logged)	-0.063	-0.063
	(0.047)	(0.047)
Distance to Closest Highway (logged)	0.026	0.026
	(0.050)	(0.050)
Constant	-7.526***	-7.526***
	(0.517)	(0.517)
Observations	235997	235997
Log likelihood	-25329.709	-23340.728
Time Fixed Effects	Yes	Yes
Controls	Yes	Yes

Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.6.2. Effects on Total Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.390***	0.546***	0.833**	0.896	1.047
	(0.076)	(0.040)	(0.052)	(0.074)	(0.092)
Direct	1.275***	0.663***	0.898***	1.212***	1.068#
	(0.031)	(0.025)	(0.026)	(0.041)	(0.037)
Total	1.773***	0.362***	0.748***	1.086	1.118
	(0.108)	(0.031)	(0.054)	(0.101)	(0.111)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.6.3. Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.387***	0.547***	0.833**	0.897	1.047
	(0.076)	(0.040)	(0.052)	(0.074)	(0.091)
Direct	1.259***	0.718***	0.882***	1.196***	1.063*
	(0.030)	(0.022)	(0.026)	(0.041)	(0.032)
Total	1.747***	0.393***	0.735***	1.072	1.113
	(0.107)	(0.033)	(0.053)	(0.100)	(0.108)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.7 Models with Different Border Measures

The US-Mexico border might not be uniform in its importance. In the core models we included segments of the border covering 100 km of each port of entry side by side. However, either the very point of entry might be the important resource for DTOs, shorter segments, or the whole border. Thus, by only focusing on one segment, our results might be biased by not measuring the border properly. To assess such potential bias in our models, we used three alternative measures of the border: segments of 50 km from any port of entry side by side, the whole border (Department of Homeland Security 2017), and all the ports of entry (US Customs and Border Protection 2019).

Table 2.7.1. Mediation Negative Binomial Estimates with Different Border Measures

	(1) Total Deaths	(2) Total Deaths	(3) Total Deaths	(4) Total Deaths	(5) Total Deaths

Violence					
Distance to Closest Border Segment (100 km, logged)	0.663***				
	(0.016)				
Distance to Closest Border Segment (50 km, logged)		0.663***			
		(0.016)			
Distance to US border (logged)			0.680***		
			(0.015)		
Distance to Closest Entry Port (logged)				0.610***	
				(0.017)	
Distance to Closest Port Closest to Highways (logged)					0.675***
					(0.015)
Number of DTOs	5.685***	5.685***	5.709***	5.660***	5.701***
	(0.398)	(0.398)	(0.400)	(0.396)	(0.400)
Total Deaths (t-1)	1.020**	1.020**	1.021**	1.020*	1.020**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Constant	0.001***	0.001***	0.001***	0.002***	0.001***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Number of DTOs					
Distance to Closest Border Segment (100 km, logged)	0.706***				
	(0.025)				
Distance to Closest Border Segment (50 km, logged)		0.706***			
		(0.025)			
Distance to US border (logged)			0.712***		
			(0.024)		
Distance to Closest Entry Port (logged)				0.662***	
				(0.027)	
Distance to Closest Port Closest to Highways (logged)					0.709***
					(0.024)
Constant	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	235997	235997	235997	235997	235997
Log likelihood	-25329.709	-25329.709	-25331.370	-25318.019	-25329.397
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

After these estimations, our results remain equal: with any measure of the border, closer localities have significantly more violence either because of more DTOs or because other mechanisms. Interestingly, however, the magnitudes of these effects are not homogenous. For instance, localities closer to ports of entry have 51% more deaths (IRR=0.489) because of more DTOs and around 40% (IRR=0.610) more deaths because of other mechanisms. In contrast, for each additional kilometer localities closer to segments of the border or the whole border have, on average, around 45% more deaths because of more DTOs and 34% more deaths because of other mechanisms. In other words, the closeness to the very ports of entry seem to have a higher effect through both mechanisms than whole segments of the border.

Table 2.7.2. Mediation Negative Binomial Estimates with Different Border Measures

	(1) Inter DTO Violence	(2) Inter DTO Violence	(3) Inter DTO Violence	(4) Inter DTO Violence	(5) Inter DTO Violence
Violence					
Distance to Closest Border Segment (100 km, logged)	0.718***				
	(0.017)				
Distance to Closest Border Segment (50 km, logged)		0.718***			
		(0.017)			
Distance to US border (logged)			0.730***		
			(0.017)		
Distance to Closest Entry Port (logged)				0.673***	
				(0.019)	
Distance to Closest Port Closest to Highways (logged)					0.727***
					(0.017)
Number of DTOs	5.630***	5.630***	5.649***	5.620***	5.642***
	(0.377)	(0.377)	(0.379)	(0.376)	(0.378)
Inter DTO Killings (t-1)	1.004	1.004	1.004	1.003	1.004
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Constant	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of DTOs					
Distance to Closest Border Segment (100 km, logged)	0.706***				
	(0.025)				
Distance to Closest Border Segment (50 km, logged)		0.706***			
		(0.025)			
Distance to US border (logged)			0.712***		

			(0.024)		
Distance to Closest Entry Port (logged)				0.662***	
				(0.027)	
Distance to Closest Port Closest to Highways (logged)					0.709***
					(0.024)
Constant	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	235997	235997	235997	235997	235997
Log likelihood	-23340.728	-23340.728	-23341.161	-23336.315	-23340.452
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.7.3. Effects on Total Killings

	(1) Border 100	(2) Border 50	(3) Border	(4) Ports of Entry	(5) Ports of Entry Closest to Highways
Indirect	0.546***	0.546***	0.553***	0.489***	0.550***
	(0.036)	(0.036)	(0.035)	(0.038)	(0.035)
Direct	0.663***	0.663***	0.680***	0.610***	0.675***
	(0.016)	(0.016)	(0.015)	(0.017)	(0.015)
Total	0.362***	0.362***	0.376***	0.298***	0.371***
	(0.025)	(0.025)	(0.025)	(0.024)	(0.025)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.7.4. Effects on Inter DTO Killings

	(1) Border 100	(2) Border 50	(3) Border	(4) Ports of Entry	(5) Ports of Entry Closest to Highways
Indirect	0.547***	0.547***	0.555***	0.490***	0.552***
	(0.035)	(0.035)	(0.034)	(0.038)	(0.034)
Direct	0.718***	0.718***	0.730***	0.673***	0.727***
	(0.017)	(0.017)	(0.017)	(0.019)	(0.017)
Total	0.393***	0.393***	0.405***	0.330***	0.401***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.026)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses; # p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.8 Models with Cross Section Design

In the manuscript, we present results accounting for the temporal variation of the levels of violence by locality. In this appendix, we present evidence that results hold regardless of the use of a cross-sectional design. Instead of counts of deaths by year, the dependent variables are counts of deaths over the entire period (2006-2011). Except for the number of criminal groups and the number of killed criminals in confrontations with the government, the rest of controls are means over the entire period. Standard errors are clustered at the locality level. The tables below show that results are consistent with what we present in the manuscript.

Table 2.8.1. Mediation Negative Binomial Models with Cross Sectional Design

	(1) Total Deaths	(2) Inter DTO Deaths
Violence		
Distance to Closest Border Segment	-0.548***	-0.437***
	(0.041)	(0.039)
Distance to Closest Pipeline (logged)	0.229***	0.214***
	(0.022)	(0.021)
Distance to Closest Port (logged)	-0.172***	-0.163***
	(0.035)	(0.033)
Distance to Closest Airport (logged)	0.125***	0.096**
	(0.034)	(0.035)
Distance to Closest Highway (logged)	0.041	0.043
	(0.035)	(0.030)
Number of DTOs	1.089***	1.087***
	(0.117)	(0.127)
Zetas	0.459*	0.377*
	(0.185)	(0.153)
Beltran Leyva	0.981***	0.939***
	(0.164)	(0.156)
Sinaloa	0.862***	0.917***
	(0.163)	(0.156)
Familia	0.317*	0.323*
	(0.138)	(0.134)
Golfo	-0.598***	-0.602***
	(0.166)	(0.150)
Juarez	0.736**	0.981***
	(0.230)	(0.225)
Tijuana	-0.830***	-0.638**
	(0.239)	(0.234)
Social Development	-0.639***	-0.602***

	(0.048)	(0.044)
Population (logged)	0.867***	0.854***
	(0.029)	(0.027)
Schooling	-0.003	-0.003
	(0.003)	(0.003)
Party Change	0.385***	0.455***
	(0.096)	(0.093)
Constant	-3.993***	-4.828***
	(0.423)	(0.402)
Number of DTOs		
Distance to Closest Border Segment	-0.382***	-0.382***
	(0.045)	(0.045)
Distance to Closest Pipeline (logged)	0.163***	0.163***
	(0.036)	(0.036)
Distance to Closest Port (logged)	-0.111*	-0.111*
	(0.045)	(0.045)
Distance to Closest Airport (logged)	-0.168**	-0.168**
	(0.052)	(0.052)
Distance to Closest Highway (logged)	0.014	0.014
	(0.048)	(0.048)
Killed DTO Members (logged)	0.702***	0.702***
	(0.081)	(0.081)
PAN mayor	0.830**	0.830**
	(0.255)	(0.255)
PRI mayor	0.769**	0.769**
	(0.235)	(0.235)
PRD mayor	1.101***	1.101***
	(0.269)	(0.269)
PRI governor	-0.198	-0.198
	(0.127)	(0.127)
PAN governor	-0.874***	-0.874***
	(0.161)	(0.161)
Social Development	-0.931***	-0.931***
	(0.092)	(0.092)
Population (logged)	0.794***	0.794***
	(0.036)	(0.036)
Schooling	0.004	0.004
	(0.005)	(0.005)
Percent of Occupied Male	-0.010	-0.010
	(0.006)	(0.006)
Opium Suitability Area	0.008***	0.008***
	(0.002)	(0.002)

Constant	-4.615***	-4.615***
	(0.826)	(0.826)
Observations	47203	47203
Log likelihood	-18684.301	-17222.641

Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.8.2. Effects on Total Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.195***	0.660***	0.886*	0.833**	1.015
	(0.049)	(0.042)	(0.044)	(0.051)	(0.053)
Direct	1.257***	0.578***	0.842***	1.134***	1.042
	(0.028)	(0.024)	(0.030)	(0.039)	(0.036)
Total	1.502***	0.381***	0.746***	0.944	1.058
	(0.070)	(0.028)	(0.046)	(0.068)	(0.068)
Observations	47203	47203	47203	47203	47203

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.8.3. Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.194***	0.661***	0.886*	0.833**	1.015
	(0.050)	(0.044)	(0.044)	(0.051)	(0.053)
Direct	1.239***	0.646***	0.849***	1.101**	1.044
	(0.026)	(0.025)	(0.028)	(0.038)	(0.031)
Total	1.480***	0.427***	0.753***	0.917	1.059
	(0.069)	(0.032)	(0.046)	(0.067)	(0.066)
Observations	47203	47203	47203	47203	47203

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.9 Models with Additional Interactions

2.9A Refineries and Distance to Oil Pipelines

Table 2.9.A.1 Mediation Negative Binomial Models with Interactions Between Refineries and Distance to Oil Pipelines

	(1) Total Deaths	(2) Inter DTO Deaths
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.411***	-0.331***
	(0.024)	(0.024)
Refinery	-0.451	-0.383
	(0.395)	(0.407)
Distance to Closest Pipeline (logged)	0.241***	0.229***
	(0.014)	(0.015)
Refinery x Distance to Closest Pipeline (logged)	-0.122	-0.137
	(0.272)	(0.287)
Distance to Closest Port (logged)	-0.109***	-0.127***
	(0.022)	(0.022)
Distance to Closest Airport (logged)	0.194***	0.181***
	(0.024)	(0.024)
Distance to Closest Highway (logged)	0.067***	0.062***
	(0.014)	(0.015)
Number of DTOs	1.741***	1.730***
	(0.070)	(0.067)
Total Deaths (t-1)	0.020**	
	(0.008)	
Inter DTO Killings (t-1)		0.004
		(0.008)
Constant	-6.783***	-7.293***
	(0.288)	(0.295)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.349***	-0.349***
	(0.035)	(0.035)
Refinery	0.101	0.101
	(0.611)	(0.611)
Distance to Closest Pipeline (logged)	0.191***	0.191***
	(0.025)	(0.025)
Refinery x Distance to Closest Pipeline (logged)	0.237	0.237

	(0.382)	(0.382)
Distance to Closest Port (logged)	-0.105**	-0.105**
	(0.034)	(0.034)
Distance to Closest Airport (logged)	-0.064#	-0.064#
	(0.038)	(0.038)
Distance to Closest Highway (logged)	0.026	0.026
	(0.031)	(0.031)
Constant	-7.533***	-7.533***
	(0.491)	(0.491)
Observations	235997	235997
Log likelihood	-25326.631	-23338.312
Time Fixed Effects	Yes	Yes
Controls	Yes	Yes

Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.9.A.2. Effects on Total Killings

	(1) Distance to Closest Pipeline	(2) Refinery	(3) Refinery x Distance to Closest Pipeline	(4) Distance to US Border	(5) Distance to Closest Port	(6) Distance to Closest Airport	(7) Distance to Closest Highway
Indirect	1.395***	1.192	1.511	0.545***	0.834**	0.894#	1.046
	(0.064)	(1.268)	(1.006)	(0.036)	(0.050)	(0.059)	(0.056)
Direct	1.273***	0.637	0.885	0.663***	0.897***	1.214***	1.069***
	(0.018)	(0.252)	(0.240)	(0.016)	(0.019)	(0.029)	(0.015)
Total	1.775***	0.759	1.337	0.361***	0.747***	1.086	1.118*
	(0.085)	(0.862)	(0.961)	(0.025)	(0.048)	(0.076)	(0.062)
Observations	235997	235997	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.9.A.3. Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Refinery	(3) Refinery x Distance to Closest Pipeline	(4) Distance to US Border	(5) Distance to Closest Port	(6) Distance to Closest Airport	(7) Distance to Closest Highway
Indirect	1.392***	1.191	1.507	0.547***	0.834**	0.895#	1.045
	(0.063)	(1.259)	(0.997)	(0.035)	(0.050)	(0.059)	(0.056)
Direct	1.257***	0.682	0.872	0.718***	0.881***	1.198***	1.064***
	(0.019)	(0.277)	(0.250)	(0.017)	(0.019)	(0.029)	(0.016)
Total	1.750***	0.812	1.314	0.393***	0.735***	1.072	1.112#
	(0.084)	(0.919)	(0.948)	(0.027)	(0.047)	(0.075)	(0.062)
Observations	235997	235997	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.9B Law Enforcement and Distance to Highways

Table 2.9.B.1. Mediation Negative Binomial Models with Interaction between Law Enforcement and Distance to Highways in First Equation

	(1) Total Deaths	(2) Inter DTO Deaths
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.411***	-0.332***
	(0.024)	(0.024)
Distance to Closest Pipeline (logged)	0.243***	0.230***
	(0.014)	(0.015)
Distance to Closest Port (logged)	-0.108***	-0.125***
	(0.022)	(0.022)
Distance to Closest Airport (logged)	0.192***	0.179***
	(0.024)	(0.024)
Distance to Closest Highway (logged)	0.066***	0.061***
	(0.014)	(0.015)
Number of DTOs	1.738***	1.728***
	(0.070)	(0.067)
Total Deaths (t-1)	0.020**	
	(0.008)	
Inter DTO Killings (t-1)		0.004
		(0.008)
Constant	-6.784***	-7.293***
	(0.288)	(0.295)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.347***	-0.347***
	(0.035)	(0.035)
Distance to Closest Pipeline (logged)	0.186***	0.186***
	(0.025)	(0.025)
Distance to Closest Port (logged)	-0.108**	-0.108**
	(0.034)	(0.034)
Distance to Closest Airport (logged)	-0.077*	-0.077*
	(0.038)	(0.038)
Law Enforcement	1.276***	1.276***
	(0.324)	(0.324)
Distance to Closest Highway (logged)	0.033	0.033
	(0.031)	(0.031)
Law Enforcement x Distance to Closest Highway (logged)	-0.591**	-0.591**
	(0.212)	(0.212)
Constant	-7.459***	-7.459***
	(0.488)	(0.488)
Observations	235997	235997
Log likelihood	-25320.641	-23331.661
Time Fixed Effects	Yes	Yes
Controls	Yes	Yes

Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.9.B.2 Effects on Total Killings

	(1) Distance to Closest	(2) Distance to US Border	(3) Distance to Closest	(4) Distance to Closest	(5) Distance to Closest	(6) Killed DTOs	(7) Killed DTOs x

	Pipeline		Port	Airport	Highway		Distance to Closest Highway
Indirect	1.381***	0.548***	0.829**	0.875*	1.059	9.181***	0.358**
	(0.062)	(0.035)	(0.049)	(0.057)	(0.058)	(5.241)	(0.132)
Direct	1.275***	0.663***	0.898***	1.212***	1.068***		
	(0.018)	(0.016)	(0.019)	(0.029)	(0.015)		
Total	1.762***	0.363***	0.744***	1.060	1.131*		
	(0.083)	(0.025)	(0.047)	(0.074)	(0.064)		
Observations	235997	235997	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.9.B.3 Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway	(6) Killed DTOs	(7) Killed DTOS x Distance to Closest Highway
Indirect	1.378***	0.550***	0.830**	0.876*	1.058	9.035***	0.360**
	(0.062)	(0.035)	(0.049)	(0.057)	(0.057)	(5.115)	(0.132)
Direct	1.258***	0.718***	0.882***	1.195***	1.063***		
	(0.019)	(0.017)	(0.019)	(0.029)	(0.016)		
Total	1.733***	0.395***	0.732***	1.046	1.124*		
	(0.082)	(0.027)	(0.046)	(0.073)	(0.063)		
Observations	235997	235997	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.9.B.4. Mediation Negative Binomial Models with Interaction between Law Enforcement and Distance to Highways in Both Equations

	(1) Total Deaths	(2) Inter DTO Deaths
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.413***	-0.331***
	(0.023)	(0.024)
Distance to Closest Pipeline (logged)	0.241***	0.228***
	(0.014)	(0.015)
Distance to Closest Port (logged)	-0.110***	-0.127***
	(0.021)	(0.022)
Distance to Closest Airport (logged)	0.188***	0.173***
	(0.024)	(0.024)
Killed DTOs	1.215***	1.008***
	(0.197)	(0.182)
Distance to Closest Highway (logged)	0.064***	0.058***
	(0.014)	(0.015)
Killed DTOs x Distance to Closest Highway	-0.092	0.069
	(0.155)	(0.155)
Number of DTOs	1.735***	1.721***

	(0.069)	(0.067)
Total Deaths (t-1)	-0.003	
	(0.007)	
Inter DTO Killings (t-1)		-0.008***
		(0.003)
Constant	-6.737***	-7.241***
	(0.286)	(0.294)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.347***	-0.347***
	(0.035)	(0.035)
Distance to Closest Pipeline (logged)	0.186***	0.186***
	(0.025)	(0.025)
Distance to Closest Port (logged)	-0.108**	-0.108**
	(0.034)	(0.034)
Distance to Closest Airport (logged)	-0.077*	-0.077*
	(0.038)	(0.038)
Killed DTOs	1.276***	1.276***
	(0.324)	(0.324)
Distance to Closest Highway (logged)	0.033	0.033
	(0.031)	(0.031)
Killed DTOs x Distance to Closest Highway	-0.591**	-0.591**
	(0.212)	(0.212)
Constant	-7.459***	-7.459***
	(0.488)	(0.488)
Observations	235997	235997
Log likelihood	-25297.568	-23310.886
Time Fixed Effects	Yes	Yes
Controls	Yes	Yes

Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.9.B.5. Effects on Total Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway	(6) Killed DTOs	(7) Killed DTOs x Distance to Closest Highway
Indirect	1.380***	0.548***	0.829**	0.875*	1.058	9.150***	0.358**
	(0.062)	(0.035)	(0.049)	(0.057)	(0.058)	(5.214)	(0.132)
Direct	1.273***	0.662***	0.896***	1.207***	1.067***	3.371***	0.913
	(0.018)	(0.016)	(0.019)	(0.028)	(0.015)	(0.664)	(0.141)
Total	1.757***	0.363***	0.743***	1.056	1.129*	30.846***	0.327**
	(0.083)	(0.025)	(0.047)	(0.073)	(0.063)	(18.605)	(0.131)
Observations	235997	235997	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.9.B.6. Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway	(6) Killed DTOs	(7) Killed DTOs x Distance to Closest Highway
Indirect	1.377***	0.551***	0.830**	0.876*	1.058	8.986***	0.361**
	(0.061)	(0.035)	(0.049)	(0.057)	(0.057)	(5.074)	(0.132)
Direct	1.256***	0.718***	0.881***	1.189***	1.059***	2.823***	1.069
	(0.019)	(0.017)	(0.019)	(0.029)	(0.016)	(0.517)	(0.165)
Total	1.730***	0.395***	0.732***	1.042	1.121*	25.371***	0.386*
	(0.081)	(0.027)	(0.046)	(0.072)	(0.063)	(15.064)	(0.154)
Observations	235997	235997	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

2.10 Models with Urban Indicators

This first set of models considers urban localities as those that have at least 2500 inhabitants or whether they were the main population center of the municipality (*cabecera municipal*) following INEGI's criteria.

Table 2.10.A.1 Mediation Negative Binomial Models with Urban Binary Indicator (INEGI criteria)

	(1) Total Deaths	(2) Inter DTO Deaths
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.384***	-0.323***
	(0.023)	(0.024)
Distance to Closest Pipeline (logged)	0.223***	0.217***
	(0.014)	(0.015)
Distance to Closest Port (logged)	-0.129***	-0.141***
	(0.022)	(0.022)

Distance to Closest Airport (logged)	0.134***	0.129***
	(0.023)	(0.023)
Distance to Closest Highway (logged)	0.031*	0.030#
	(0.015)	(0.015)
Number of DTOs	1.636***	1.627***
	(0.069)	(0.066)
Total Deaths (t-1)	0.013*	
	(0.006)	
Urban	1.399***	1.215***
	(0.059)	(0.061)
Inter DTO Killings (t-1)		0.003
		(0.007)
Constant	-5.555***	-6.160***
	(0.287)	(0.296)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.345***	-0.345***
	(0.035)	(0.035)
Distance to Closest Pipeline (logged)	0.180***	0.180***
	(0.025)	(0.025)
Distance to Closest Port (logged)	-0.109**	-0.109**
	(0.034)	(0.034)
Distance to Closest Airport (logged)	-0.091*	-0.091*
	(0.037)	(0.037)
Distance to Closest Highway (logged)	0.008	0.008
	(0.032)	(0.032)
Urban	0.700***	0.700***
	(0.109)	(0.109)
Constant	-6.979***	-6.979***
	(0.495)	(0.495)
Observations	235997	235997
Log likelihood	-25027.511	-23124.031
Time Fixed Effects	Yes	Yes
Controls	Yes	Yes

Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.10.A.2. Effects on Total Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.343***	0.569***	0.836**	0.861*	1.013
	(0.057)	(0.035)	(0.047)	(0.053)	(0.053)

Direct	1.250***	0.681***	0.879***	1.143***	1.031*
	(0.018)	(0.016)	(0.019)	(0.026)	(0.015)
Total	1.678***	0.388***	0.735***	0.984	1.044
	(0.075)	(0.025)	(0.044)	(0.064)	(0.057)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.10.A.3. Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.341***	0.570***	0.837**	0.862*	1.013
	(0.056)	(0.035)	(0.046)	(0.053)	(0.053)
Direct	1.242***	0.724***	0.868***	1.138***	1.030#
	(0.018)	(0.017)	(0.019)	(0.027)	(0.016)
Total	1.665***	0.413***	0.727***	0.981	1.043
	(0.074)	(0.027)	(0.043)	(0.064)	(0.056)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

This set of models identifies urban localities as those that have a population greater than or equal to 2500 inhabitants regardless of whether they were municipal main population centers.

Table 2.10.B.1. Mediation Negative Binomial Models with Urban Binary Indicator (Population criterion)

	(1) Total Deaths	(2) Inter DTO Deaths
Violence		
Distance to Closest Border Segment (100 km, logged)	-0.411***	-0.330***
	(0.024)	(0.024)
Distance to Closest Pipeline (logged)	0.246***	0.232***
	(0.014)	(0.015)
Distance to Closest Port (logged)	-0.107***	-0.124***

	(0.022)	(0.022)
Distance to Closest Airport (logged)	0.184***	0.169***
	(0.023)	(0.024)
Distance to Closest Highway (logged)	0.057***	0.054***
	(0.014)	(0.015)
Number of DTOs	1.727***	1.720***
	(0.070)	(0.066)
Total Deaths (t-1)	0.019*	
	(0.007)	
Urban	0.414***	0.381***
	(0.064)	(0.066)
Inter DTO Killings (t-1)		0.004
		(0.008)
Constant	-6.279***	-6.840***
	(0.297)	(0.304)
Number of DTOs		
Distance to Closest Border Segment (100 km, logged)	-0.349***	-0.349***
	(0.035)	(0.035)
Distance to Closest Pipeline (logged)	0.189***	0.189***
	(0.025)	(0.025)
Distance to Closest Port (logged)	-0.104**	-0.104**
	(0.034)	(0.034)
Distance to Closest Airport (logged)	-0.069#	-0.069#
	(0.038)	(0.038)
Distance to Closest Highway (logged)	0.024	0.024
	(0.031)	(0.031)
Urban	0.222#	0.222#
	(0.117)	(0.117)
Constant	-7.303***	-7.303***
	(0.503)	(0.503)
Observations	235997	235997
Log likelihood	-25307.147	-23322.213
Time Fixed Effects	Yes	Yes
Controls	Yes	Yes

Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2.10.B.2. Effects on Total Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.351***	0.555***	0.818***	0.852*	1.003
	(0.060)	(0.036)	(0.048)	(0.055)	(0.055)

Direct	1.279***	0.663***	0.899***	1.202***	1.059***
	(0.018)	(0.016)	(0.019)	(0.028)	(0.015)
Total	1.727***	0.368***	0.735***	1.025	1.062
	(0.081)	(0.025)	(0.046)	(0.071)	(0.061)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

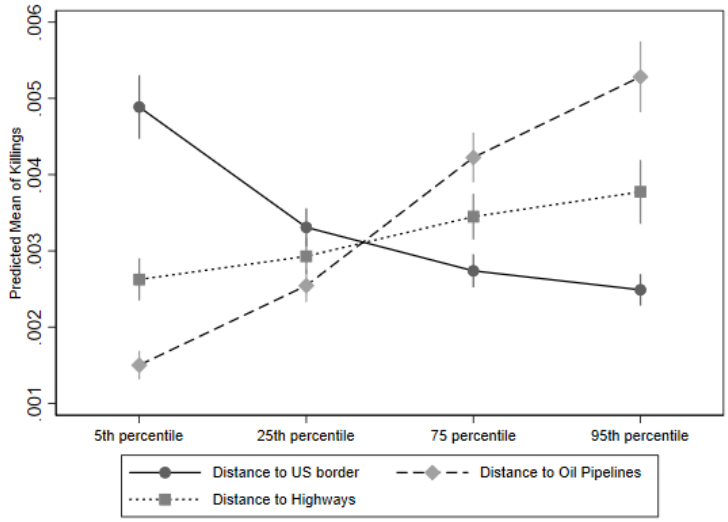
Table 2.10B.3. Effects on Inter DTO Killings

	(1) Distance to Closest Pipeline	(2) Distance to US Border	(3) Distance to Closest Port	(4) Distance to Closest Airport	(5) Distance to Closest Highway
Indirect	1.385***	0.548***	0.836**	0.888#	1.042
	(0.062)	(0.035)	(0.049)	(0.058)	(0.056)
Direct	1.261***	0.719***	0.884***	1.184***	1.055***
	(0.019)	(0.017)	(0.019)	(0.028)	(0.016)
Total	1.746***	0.394***	0.739***	1.052	1.099#
	(0.082)	(0.027)	(0.046)	(0.073)	(0.061)
Observations	235997	235997	235997	235997	235997

Exponentiated coefficients; Standard errors in parentheses
# p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Appendix 3. Additional Predicted Effects

Figure 3.1. Predicted Mean of Killings in Localities in the 5th Percentile of Population



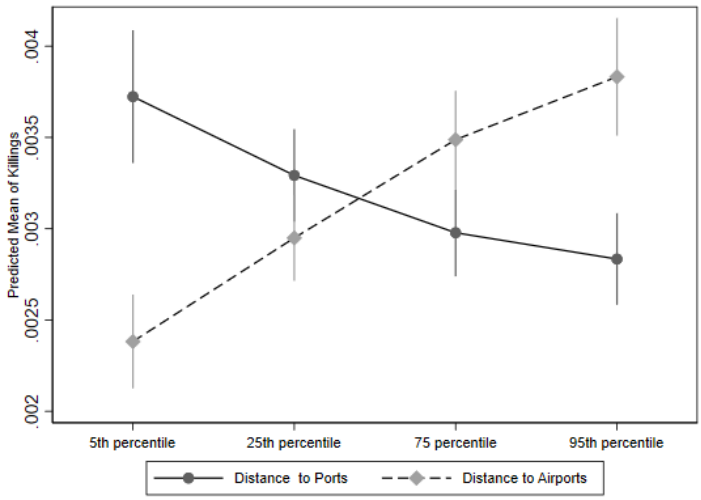
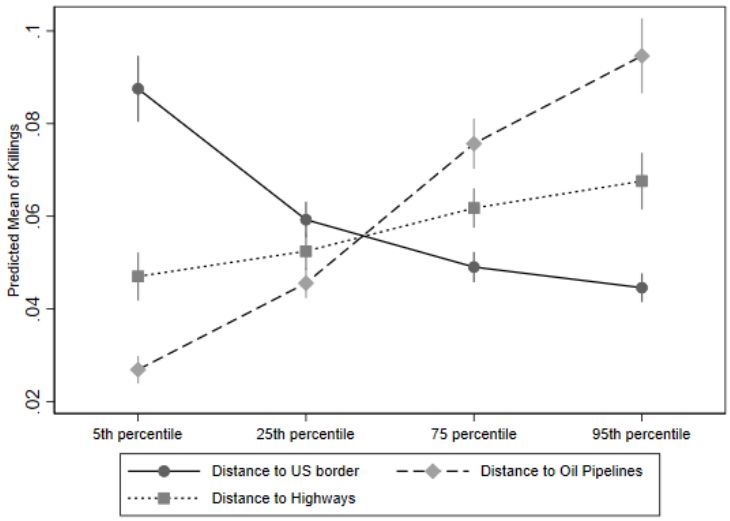
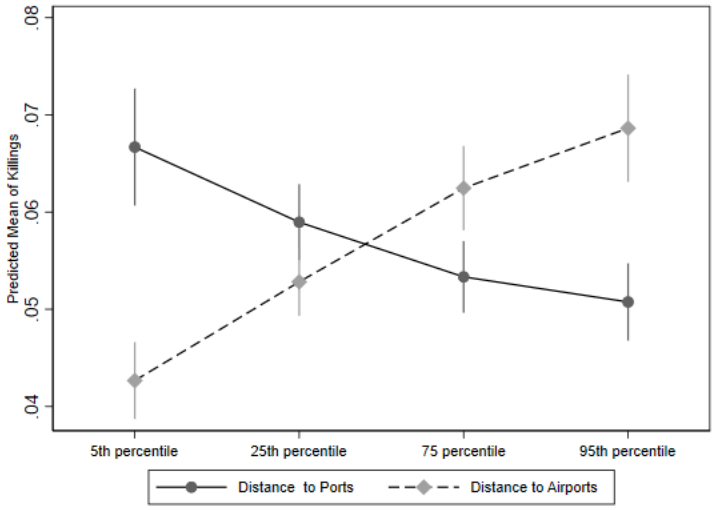


Figure 3.2. Predicted Mean of Killings in Localities in the 95th Percentile of Population


Predicted Mean of Killings
.02
.04
.06
.08
.1
5th percentile
25th percentile
75 percentile
95th percentile
Distance to US border
Distance to Oil Pipelines
Distance to Highways


Predicted Mean of Killings
.04
.05
.06
.07
.08
5th percentile
25th percentile
75 percentile
95th percentile
Distance to Ports
Distance to Airports